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rTMS for tinnitus

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A commentary on

Can temporal repetitive transcranial magnetic stimulation be enhanced by targeting affective components of tinnitus with frontal rTMS? A randomized controlled pilot trial
by Kreuzer, P. M., Landgrebe, M., Schecklmann, M., Poeppl, T. B., Vielsmeier, V., Hajak, G., Kleinjung, T., and Langguth, B. (2011). Front. Syst. Neurosci. 5:88. doi: 10.3389/ fnsys.2011.00088

I applaud the authors of the article "Can temporal repetitive transcranial magnetic stimulation be enhanced by targeting affective components of tinnitus with frontal rTMS? a randomized controlled pilot trial" because many of them are pioneers in the development of protocols that use rTMS to treat chronic tinnitus. Investigators (including myself) around the world conducting similar studies of rTMS for tinnitus often follow the procedural examples of these researcher–clinicians in Germany. In this recent publication, Kreuzer et al. (2011) compared the effects of 2000 daily pulses of rTMS delivered to patients' left temporal region with a protocol that began with 1000 pulses of right frontal rTMS followed by 1000 pulses of left temporal rTMS. In both protocols, patients exhibited improvement in measures of tinnitus severity. However, there was no significant difference in treatment outcomes between the left temporal and the combined (right frontal + left temporal) rTMS protocols. I would like to add a few comments about this study:

(1) No placebo condition was included. Because the placebo effect can be significant for many tinnitus patients (Dobie, 1999), a placebo condition should be used in most clinical trials involving this population.
(2) The fact that patients' scores for the Tinnitus Questionnaire, THI, and BDI all declined from the time of screening to the time just before the first rTMS session (baseline) illustrates, I believe, the placebo effect (or, as the authors describe it, "an anticipation effect"). This decline in scores from screening to baseline is similar in magnitude to the decline in scores that occurred during rTMS treatment.
(3) The authors state that they used a left temporal coil placement for rTMS (regardless of the location of patients' tinnitus perception) in order to compare results with previous studies that used the same coil placement. However, because Frank et al. (2010) reported that left temporal rTMS was not effective for patients with right-side tinnitus, it is time for researchers to re-evaluate rTMS coil placement in experimental designs.

All of us conducting rTMS studies for tinnitus realize that many procedural questions need to be addressed before this treatment option can reach its full clinical potential. We thank our colleagues in Germany for continuing to conduct studies that increase our understanding and contribute to improvements in this area of research.

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